



Understanding high risk hosts for *Phytophthora*

Invasive *Phytophthora* spp. are responsible for many plant disease epidemics around the world. Their lifecycles allow them to thrive in nursery environments and spread to wider landscapes via infected propagation material.

A recent scientific study investigating *Phytophthora* diversity in plant nurseries identified certain plant species that are of higher risk in terms of harbouring *Phytophthora*.

This guidance aims to help those growing or handling live plants to manage their *Phytophthora* risk by understanding which hosts pose the greatest threat. Bear in mind however that *Phytophthora* can infect any live plant material, including woody plants, and persist in growing media/soil. To avoid spreading these plant pathogens, assess the biosecurity procedures of all your suppliers and check that all stock arriving on site is pest and pathogen free.

High risk hosts for *Phytophthora*

Hosts at higher risk of carrying quarantine regulated or newly invasive species of *Phytophthora*

- *Rhododendron* and *Viburnum* are the two most common hosts for *P. ramorum*
- *Chamaecyparis*, *Cupressus x leylandii* and *Juniperus* are hosts for *P. austrocedri* and *P. lateralis*



Symptoms of *P. ramorum* on *Rhododendron*.



Cupressus x leylandii infected with *P. austrocedri*.

- *Buxus* is frequently infected with *P. occultans*



Buxus with symptoms associated with *P. occultans*.

Other ornamental hosts found to harbour a particularly high diversity of *Phytophthora* pathogens

- *Taxus*, *Hebe*, *Lavendula*, *Camellia*: These hosts can carry a broad range of damaging *Phytophthora* pathogens such as *P. cryptogea*, *P. cinnamomi* and *P. plurivora*



Chamaecyparis lawsoniana infected with *P. lateralis*.



Taxus baccata is frequently infected with *P. cinnamomi*.

Tree hosts with the highest *Phytophthora* risk

- *Pseudotsuga menziesii* has a surprisingly high diversity of associated *Phytophthora* pathogens. This host is also at risk of carrying *Phytophthora* species new to the UK including *P. pluvialis* and *P. pseudotsugae*
- *Fagus*, *Prunus*, *Pinus* and *Abies* harbour diverse *Phytophthora* species on roots
- *Quercus* hosts are at high risk of carrying *P. quercina* on roots

Be aware of symptoms

Every nursery should have a pest risk management plan and a staff member trained in plant health and **symptom awareness**.

All symptoms of foliage discoloration or desiccation, however minor, should be investigated. A diagnostics lab may be required, and any affected plants should be isolated. Sick plants should be disposed of carefully - see additional guidance on **plant disposal**.

Management practices that may reduce *Phytophthora* risk

Know your suppliers and assess their biosecurity procedures. Consider whether you actually need to trade in high-risk hosts. Risk can also be reduced by following **best practice**.

Certification to improve supply chain biosecurity

One way of having confidence in the health of the plants you specify is by choosing a certified supplier who has adopted the Plant Health Management Standard. More details are available at **Plant Healthy** or **Fera - Ready to Plant**.

Strongly consider promoting biosecurity across the supply chain by becoming certified and by sourcing from growers who are scheme members.



Lavendula can host multiple *Phytophthora* species.

More information

Further details of our work on biosecurity is available at:

www.forestresearch.gov.uk

To discuss any aspect of Forest Research's work on biosecurity threats, contact:

sarah.green@forestresearch.gov.uk